

Physicists aid builders

A laboratory (picture) with an artificial sky has been built at the Scientific Research Institute of Construction Physics.

The artificial sky incorporates almost two thousand bulbs for simulating the conditions of artificial lighting any time during the day or night, in different weather conditions and at different latitudes. A rotating stage, five metres in diameter, has models of houses or city quarters placed on it, from which the lighting conditions are measured at different points in the structures and surrounding space by means of special photoelectric cells. The data thus obtained is fed into a computer which immediately answers questions about how best to site a house or whether it has been properly designed.

The other picture was taken at the institute's laboratory of architectural acoustics. Staff member, Natalya Saksikova, is taking acoustic measurements at the model auditorium of the Opera House in Donetsk (Ukraine). Such research helps architects put to practical tests their ideas about designing new places of entertainment and modernizing existing ones.

These are only two aspects of the work done by scientists at the institute. They are also solving

many other problems in construction physics.

One of these is vital for the Soviet Union — temperature protection of houses, especially in the northern areas. The scientists have come up with many suggestions as regards the light and colour surroundings to dwelling houses and other buildings. On the Vysokovolny Lane in Moscow an entire complex of houses is being built with special anti-freeze insulations recommended by the scientists.



Another irrigation zone in Uzbekistan

A new 150,000 hectare zone of irrigated cotton farm is being set up in the Dzhizak Steppe in Uzbekistan (a Central Asian Union republic which produces the bulk of Soviet raw cotton). To assure watering of the Dzhizak Steppe 243 kilometres of main water canals will be laid and four powerful pumping stations constructed to raise water from the Amudarya to a height of 175 metres. The water will further reach the fields through underground ducts supplied with flexible hoses.

The first 60,000 hectares have already received water in the Dzhizak Steppe. Eight new state farms have been established there. Country dwellings with conveniences and comfort close to those in towns and cities have been built for their workers. The state bears family expenses involved in moving to these new buildings. The workers get money grants in lump sums and are exempted from income taxation for eight years. Besides, they do not pay rent for two years.

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First billion kilowatt-hours... at BAM

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This station now supplies electric power to all the industrial enterprises of the South-Yakutsk fuel-and-energy complex, the

city of Neryungri, settlements along the BAM route and the Barkat-Tommot-Yakutsk railway line now under construction.

The Neryungri heat-and-power plant is the first at BAM. It has already been connected to

the Single Power Grid of the Far East. The third generating unit, which will produce commercial current at the end of the year, is now being assembled. This will complete the construction of the first stage of this power station.

STUDENTS' 'THIRD SEMESTER'

Moscow college and university students will spend their third "academic" term doing much needed work. The programme of this "labour farm", as it is popularly described in this country, is the subject of an article in the Young Communist League newspaper, KOMSKO-MOLSKAYA PRAVDA.

All Soviet Student Work Force has eight hundred thousand members. They will take up building, construction and assembly work and manufacture of all sorts of goods worth one and half thousand million rubles.

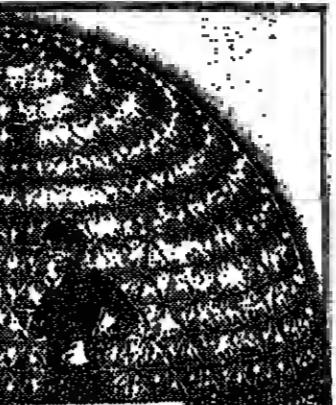
More than three hundred students, from special secondary educational establishments and technical colleges, will this summer harvest crops, process and sell fruits and vegetables, as well as work on livestock farms. Thirty thousand young men and women will serve as porters on passenger trains, thirty-five thousand as nurses and attendants of hospitals, while sixty thousand of teacher training college students will go to summer camps as Young Pioneer guides.

WILL THE SAIL HAVE TO GO?

For several years now, newspapers in this country have been arguing for and against the expediency of sailing fleets and basic possibility for reviving them, writes the newspaper SOVIETSKAYA BYELORUSSIA. The question of whether modern cargo and passenger vessels can be rigged out with sails to advantage.

This discussion has given a fresh impetus to the debate started a long time ago about the future of sailing ships used for training young navigators. The country has a large fleet of training sailing boats, including the world's largest bark "Sedov", the "Tovarishch" and the "Kuznetsk".

In the past such practical sailing courses were regarded as rather essential for training of would-be captains and navigators. Today, these training voyages are increasingly being put under question mark. Their opponents believe that sailing does not fit in with the needs of mankind; flora and fauna. Mikhail Budyko believes:



Round the Soviet Union

THE PVTAVORKH ING "PROVING GROUND FOR THOROUGH-BRED CERS, HAS MARKED HIS CENTENARY. It gained in popularity not only as a place for racing, but it has numerous specialized training sections under the guidance of top-class trainers and jockeys, many of whom are trained to compete and put to playfulness and endurance tests.

THE 2ND SYMPOSIUM ON SURGERY OF CONGENITAL AND ACQUIRED HEART DISEASES JUST CONCLUDED IN YEREVAN [CAPITAL OF ARMENIA IN THE TRANSCAUCASUS] DISCUSSED A BROAD PROGRAMME OF JOHN RESEARCH INTO CARDIOLOGY AND CHIROSURGERY WHICH USED WAY IN SOCIALIST COUNTRIES. Considerable interest is generated by a Soviet report on the appearance of living valves with biological prosthetic appliances.

PREPARATIONS FOR HEARING COMPLETION IN THE CONSTRUCTION OF A CAUCASIAN RAILROAD

LINK ORDZONIKIDZE IN NORTHERN CAUCASUS, TBILISI, CAPITAL OF THE GEORGIAN ASSOCIATED MOUNTAIN PASS. The work will make it possible to put up the development of the Caucasian republics and the central areas of the Chechen-Autonomous Republic and Ossetia. The new road will be important to the country as a whole as it will connect southern section of the straight across railroad from Caucasus to Moscow.

Sixty USSR will be represented at the clubs not only by Moscowites but also by 200 people from all Union republics. They will be decorated with eye to the national traditions of those who will assume a pleasant and responsible function of hosts. Photo stands will tell of various aspects of life of the youth in each of these republics, and there will be shows of handicrafts and traditional arts. Besides, each interclub will offer its visitors the opportunity to taste national delicacies. All this will help even festival guests who will be in Moscow to learn more about the life of the entire Soviet country, everyday life and recreation of its youth.

THE TESTING OF A COAL-MINING COMPLEX HAS BEEN COMPLETED AT THE TSENTEK COAL FIELDS [KURGAN]

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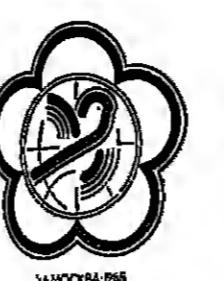
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Algeria's own planning minister Abderrahmane Belyat was recently in the Soviet Union on an official visit at the invitation of the USSR State Committee for Foreign Economic Relations and the USSR State Committee for Construction. While in Moscow he visited the Krylatovskiy experimental residential area, the TSNIEP housing design institute and the No. 3 house-building combine. Later he also visited Uzbekistan.



School leavers strolling on Lenin Hills. Photo by Sergei Chelnokov



Festival-85' club

An international youth club, Festival-85', has been set up in Moscow. Here Soviet youth and foreign guests of the capital who want to know more about the 12th World Festival of Youth and Students. The club has amateur ensembles and art groups, artists and writers as well as foreign students in the Soviet Union. It is a prototype of 13 interclubs which will be set up within the framework of the festival's tourist programme.

The idea of such clubs came from the Soviet Sputnik — International youth travel board, which has drawn up special tickets for 10,000 foreign visitors expected to attend the most up-to-date equipment and technologies for production, transportation and cold storage facilities.

Cryogenic equipment is meant for power generation, metallurgy and mechanical engineering as well as the chemical industry. On display is an air-liquefying installation in which originally and bold design are combined with compactness and reliability.

Special cold-resistant compounds are required to combine

The last school exams are over; the merry-making has subsided after the final balls and school leavers have said goodbye to their desks. The only things they possess are school-leaving certificates and... memories of school years. Among them they have independent studies to lead and many of them have already taken their choice. For those who have decided to further their education this is the time of entrance examinations for enrollment in universities and colleges. The others will go to work at various enterprises and organizations, with the additional skill acquired at school.

School leavers strolling on Lenin Hills.

Photo by Sergei Chelnokov

'CRYOGENICS-85'

An exposition, "Cryogenics-85", has been opened at the All-Union Exhibition of National Economic Achievements. The exposition's seven sections feature nearly three hundred exhibits, including the most up-to-date equipment and technologies for production, transportation and cold storage facilities.

Cryogenics has made it possible to bring gas to welding machines in one huge reservoir. Thanks to mechanization, gas argon can be led to 130 work places. Centralized argon supplies obviate the need for thousands of canisters, thus enhancing the effect of the invention.

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cryogenic materials. Specialists have designed a special glue which becomes harder when exposed to cold. The knots binding them together can be constantly heated and frozen, without disrupting the stitching.

Of particular interest are installations for cryogenic conservation. Embryos of valuable types of cattle as well as rare and productive species of fishes can be accumulated in sufficient quantities so that they could be used in the economy in times of

shortage.

Although the new reactors the ratings of which are measured in millions of watts are equal in their power rating, they belong to two different main types of design. The reactors at Zaporozhye and Belakov are shielded water-moderated reactors (VVER-1000) while those in Kursk and Smolensk are channel reactors with a graphite moderator (RBMK-1000). They are sometimes described as the "Russian model", since it was a channel reactor that was mounted at the world's first nuclear project completed in Obninsk in 1954. The VVER-1000 and the RBMK-1000 will form the loadshed of Soviet nuclear power engineering in the near future.

According to information supplied by the USSR Ministry of Power Engineering and Electricity, there are 22 nuclear projects under construction or being modernized at the moment. The new principle for the development of Soviet nuclear power engineering provides for an accelerated construction of major nuclear power projects rated between four and seven thousand million watts in the European part of the country, where the main electricity consumers are concentrated and where reserves of traditional fuels have considerably shrunk.

A most characteristic example is the famous Donbas coal field which continues to remain the biggest supplier of coal. However, this old field has passed the peak of its productivity, and the fuel has to be extracted from great depths and at great expense. This has made the Ukraine expand its Chernobyl and Rovno stations, and build four more — Zaporozhye, Crimean, Kremenchuk, and Yuzhnoukraynsk stations.

The latter two are perhaps well known, since East European CMEA members countries interested in electricity supplies are taking part on a massive basis. Each of these stations is rated at four thousand million watts. By 1980 estimated 20-22 thousand kilowatts of electric energy will be exported annually from here.

Also planned is the construction of stations which will supply both electricity and heat. The first station of this type is to be built twenty-five kilometers from Odessa. It will produce heat economically. Apart from Odessa such stations are to be built in Minsk, Kharkov and Volgograd.

VIEWPOINT

Nuclear energy today and tomorrow

The past decade can justly be described as a golden time for Soviet nuclear power generation. There have been considerable changes over these ten years: while in 1975, the total power rating of operational nuclear stations in the country did not exceed 4,500 million watts, by the start of 1985, it had increased more than fivefold. It is expected that "nuclear" electricity production, which in 1975 barely stood at two per cent of the total output, will reach four per cent by the end of this year.

Also this year it is planned to commission four new nuclear reactors of one thousand million watts each. The power of each of these reactors is, in fact, the heart of the first power block at the Balakov nuclear project now under construction near Saratov. The other reactors are being assembled at operating stations. Far the Smolensk and Zaporozhye stations the reactors will be their second units while at the Kursk station the new installation will be the fourth unit.

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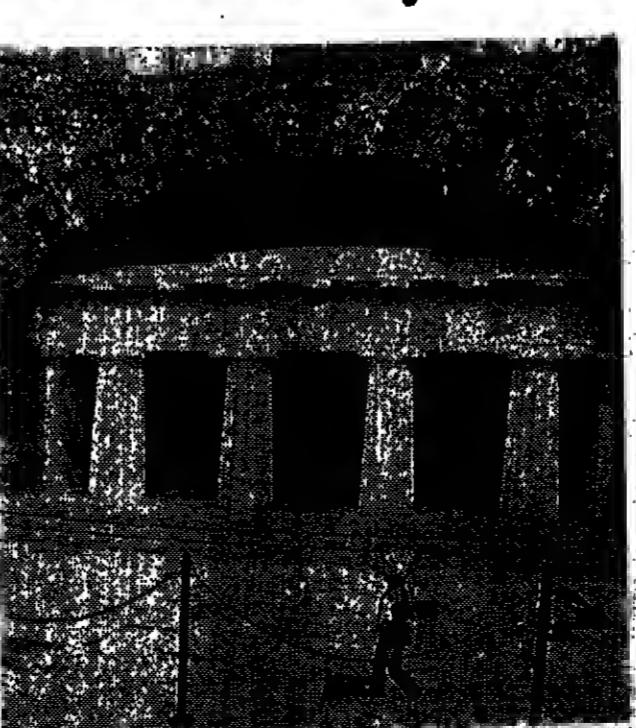
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The grotto of Alexandrovsky Garden



Places to visit

The grotto of Alexandrovsky Garden

The Alexandrovsky Garden near the Kremlin walls was laid in a remarkable time in Russian history marked by victory in the Great Patriotic War of 1812. Moscow was going through a very bad period.

Under the guidance of architect O. Resnikov, the garden, later called the Alexandrovsky garden, was laid out along the western wall of the Kremlin, in the place where the Neglinnaya River, the Tzaritsa and Borovitsky bridges leading to the Kremlin entrance stood.

The garden was divided into three parts — the Upper, Middle and Lower.

The Upper Garden, where the main entrance was arranged, was the most beautiful. The walls were decorated with equestrian statues and monuments.

The Middle Garden, the

Lower Garden, where the

grotto is located,

was less beautiful.

The grotto is

located in the

Lower Garden.

